REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-3 and 5-14 are pending in the application; Claims 5-14 having previously been withdrawn from consideration. Claims 1-3 are amended by the present amendment. Support for the amended claims can be found in the original specification, claims and drawings.[1] No new matter is presented.

As an initial matter, Applicants note that the request for information under 37 C.F.R. § 1.105 is addressed separately in a paper entitled Response to Requirement for Information under 37 C.F.R. § 1.105 filed concurrently herewith.

In the outstanding Official Action, the specification was objected to for minor informalities; Claims 1-3 were rejected under 35 U.S.C. § 102(b) as anticipated by Japanese Application No. JP 11258472 to Kondo; Claims 1-2 were rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,805,736 to Kim; and Claim 3 was rejected under 35 U.S.C. § 103(a) as unpatentable over Kim.

In response to the objection to the specification, the Title is amended to be clearly indicative of the invention to which the claims are directed. Accordingly, Applicants respectfully request that the objection to the specification be withdrawn.

Claims 1-3 were rejected under 35 U.S.C. § 102(b) as anticipated by Japanese Application No. JP 11258472 to Kondo. In response to this rejection, Applicants note that U.S. Patent 6,766,059 (hereinafter, the '059 patent) is essentially English language translation of JP 11258472 to Kondo (also, a machine translation of Kondo has been filed in an IDS submitted concurrently with this response). Thus, for purposes of clarity, the present rejection based on Kondo will be addressed herein by referring to the '059 patent.

[1] E.g., specification, Figs. 5-6 and pp. 19-24.

Amended independent Claim 1 recites, an image processing apparatus for compressing an input image using a motion vector, the image processing apparatus comprising:

> means for storing position information of each pixel of a first frame that is earlier in time than a second frame at an address corresponding to a feature value that is based on values of said each pixel and a plurality of pixels peripheral to said each pixel...

Independent Claims 2 and 3, while directed to alternative embodiments, are amended to recite substantially similar features. Accordingly, the remarks and arguments presented below are applicable to each of independent Claims 1-3.

As described in an exemplary embodiment at Figs. 5-6 and pp. 19-24 of the specification, the feature extracting unit 62 extracts a feature of a target pixel P on a current frame Fc that is supplied from the frame memory 61. The value of function f of the pixel values of the target pixel P and eight peripheral pixels is used as a feature. The feature extracting unit 62 outputs the extracted feature to a motion-vector detector 66. The frame memory 63 stores the one-frame image information input from the frame memory 61 and outputs stored image information to a feature extracting unit 64 when storing the next frame image information input from the frame memory 61.

The feature extracting unit 64 extracts a feature of each pixel on a reference frame Fr that is input from the frame memory 63 as in the case in which the feature extracting unit 62 extracts a feature of the target pixel P. The feature extracting unit 64 supplies the extracted feature of each pixel on the reference frame Fr to a database controller 65 in conjunction with the position information (e.g., coordinate information).

The database controller 65 includes a database 71, which has 71 has axb cells indicated by feature addresses 0 to a and flag addresses 0 to b. The database controller 65 associates the position information, supplied from the feature extracting unit 64, of the pixels

of the reference frame Fr, with the feature addresses corresponding to features supplied therewith and stores the resulting position information in the order of the flag addresses 1 to b. At flag address 0, the number of pieces of position information which are currently stored in the feature addresses is stored. For example, in the case in which one piece of position information is stored at feature address 1 (and stored at flag address 1) and "1" is stored at flag address 0 (cell (1, 0)), when a feature corresponding to feature address 1 is input, position information input together with the feature is stored at flag address 2 (cell (1, 2)) corresponding to feature address 1 and the value of flag address 0 (cell (1, 0)) is incremented to "2". Thus, the position information of each pixel of a first frame that is earlier in time than a second frame at an address corresponding to a feature value that is based on values of said each pixel and a plurality of pixels peripheral to said each pixel is stored.

The '059 patent describes a method to efficiently encode the foreground of an image. A foreground extracting section 41 extracts the foreground of each frame of an image, and a foreground-accumulated-image configuration section 43 configures a front accumulated image obtained by overlapping the foregrounds of the frames viewed from future side and a rear accumulated image obtained by overlapping the frames viewed from a past side.[2]

The '059 patent, however, fails to teach or suggest "storing position information of each pixel of a first frame that is earlier in time than a second frame at an address corresponding to a feature value that is based on values of said each pixel and a plurality of pixels peripheral to said each pixel," as recited in amended independent Claim 1.

In rejecting the claimed feature directed to storing position information of pixels, the outstanding Official Action cites the accumulated image memory 24 depicted in Fig. 5 of the '059 patent, and asserts that "the position information of pixels of a frame of image data is stored in addresses in the accumulated image memory 24 corresponding to an address of a

[2] The '059 patent, Abstract.

feature of each pixel, where the address of a feature of each pixel is the position address of the camera motion vector $V_n$ feature such that the upper left corner of the frame is positioned at the point indicated by the camera motion vector $V_n$ in the reference coordinate system." More specifically, as described at col. 10, lines 7-16 of the '059 patent, the writing control section 23 controls the writing address of the accumulated-image memory 24 according to the camera-motion vector sent from the vector detecting section 22, and writes the focus frame in the accumulated-image memory 24. In this case, since the focus frame is the first frame and the camera-motion vector is zero, the image data of the first frame is written into the accumulated-image memory 24 such that the upper left corner of the frame is positioned at the origin of the reference coordinate system.

Thus, the '059 patent describes that the image data (e.g. the pixel value), not the position information of each pixel, is stored at an address corresponding to an address of a feature of each pixel. Amended independent Claim 1 clearly recites "***storing position information of each pixel***... at an address corresponding to a feature value that is based on values of said each pixel and a plurality of pixels peripheral to said each pixel." The '059 patent does not describe storing the position information of each pixel at an address, but instead describes storing only image data at an address corresponding to a feature value.

The outstanding Official Action further cites Figs. 2, 3, 6A-6C, 9, 11, 12, 19 and 23 in rejecting the claimed features directed to storing position information of pixels. As described at col. 6, lines 58-67 of the '059 patent, Figs. 2 and 3 merely describe an example of an encoder, and an accumulation section 11 that is capable of storing a plurality of frames. Figs. 6A-6C show a process for detecting a motion vector that is stored in the accumulated image memory 11, which was discussed above. Figs. 9, 11, 12, 19 and 23 describe a process of detecting a center of gravity of each frame by segregating the pixels of each frame into a plurality of levels, which are limited to several ranges smaller than a pixel-value range.

During this process a sum of a plurality of coordinates of the pixels, not each pixel itself, belong to each level are stored in a level table. In the '059 patent, the coordinates of each pixel are determined based on their location in memory, not based on ***position information of each pixel that is stored***... at an address corresponding to a feature value, as recited in amended independent Claim 1.

While applicant acknowledges that, in the '059 patent, the image data stored at an address corresponding to an address of a feature of each pixel may map to a coordinate system, the data stored at the memory location does not itself include position information of each pixel, which is a feature required by amended independent Claim 1.

Therefore, the '059 patent and by extension Kondo, fail to teach or "***storing position information of each pixel***... at an address corresponding to a feature value that is based on values of said each pixel and a plurality of pixels peripheral to said each pixel," as recited in amended independent Claim 1.

Accordingly, for at least the reasons discussed above, Applicants respectfully request that the rejection of Claims 1-3 under 35 U.S.C. § 102(b) as anticipated by Kondo be withdrawn.

Claims 1-2 were rejected under 35 U.S.C. § 102(b) as anticipated by Kim, and Claim 3 was rejected under 35 U.S.C. § 103(a) as unpatentable over Kim.

Kim describes a method and apparatus for encoding a contour of an object in a video signal by using a contour motion estimation technique. As noted in the Abstract, Kim describes determining centroids of current and previous contours by averaging pixel positions on each contour and outputting the displacement therebetween as a motion vector. The previous contour is then shifted based on the motion vector to produce a predicted current contour.

Kim, however, fails to teach or suggest "***storing position information of each pixel***... at an address corresponding to a feature value that is based on values of said each pixel and a plurality of pixels peripheral to said each pixel," as recited in the pending independent claims.

Similar to the rejection based on Kondo, the Official Action relies on the frame memory (160), and the steps of storing frames therein, in rejecting the above noted claimed feature. However, as described at col. 3, lines 20-25 of Kim, the frame memory stores contour image data including position data of contour pixels of the object in the previous frame. Thus, this memory simply stores an image and position data of contour pixels in the previous frame, but does not store ***position information of each pixel***... at an address corresponding to a feature value.

The Remarks to Arguments portion of the outstanding Official Action states that "a memory that stores an image has to include storing position information of each pixel at an address in memory... to reproduce the image on a display." This, however, is clearly not the case. As noted above, the '059 patent describes that coordinates of a pixel are determined based on the location at which the pixel is stored in memory, not based on position information of each pixel that is actually stored in the memory location. With regard to this absolute assertion, Applicants respectfully request that any subsequent rejection on these grounds include evidence showing that "a memory that stores an image has to include storing position information of each pixel at an address in memory... to reproduce the image on a display."

Nonetheless, Kim fails to teach or suggest "***storing position information of each pixel***... at an address corresponding to a feature value that is based on values of said each pixel and a plurality of pixels peripheral to said each pixel," as recited in the pending independent claims.

Accordingly, for at least the reasons discussed above, Applicants respectfully request that the rejection of Claims 1-2 under 35 U.S.C. § 102(b), and Claim 3 under 35 U.S.C. § 103(a) be withdrawn.

Consequently, in view of the present amendment and in light of the foregoing comments, it is respectfully submitted that the invention defined by Claims 1-3 is patentably distinguishing over the applied references. The present application is therefore believed to be in condition for allowance and an early and favorable reconsideration of the application is therefore requested.

Respectfully submitted,

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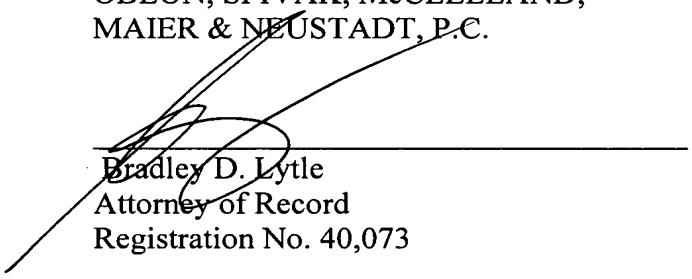

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